

REMARKS

By this amendment claims 1, 13, and 16 have been amended. Accordingly, claims 1-8 and 13-22 remain pending in this application. No new matter has been added. Applicant requests the prompt re-examination and allowance of this application.

Interview Summary

Initially, Applicant would like to thank the Examiner for the courtesy of the telephonic interview conducted on January 02, 2007. The remarks set forth herein are consistent with the discussion and agreements made therein.

Anticipation Rejections

In the Office Action, claims 1, 3-5, 7, 8, 13-16, 18-20, and 22 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,084,557 to Luria ("Luria"). Applicant respectfully traverses this rejection. A proper anticipation rejection requires each and every element set forth in the claim to be found in a single prior art reference. See MPEP § 2131. The anticipation rejection set forth in the Office Action does not properly establish that each and every claimed element is disclosed in Luria.

Luria discloses in line 66 of column 3 to line 12 of column 4 and in Fig. 1, an internal combustion engine including an intake valve 8, a first cam 12, and a second cam 34, wherein the first cam 12 controls the opening of the valve 8 and the first and second cams 12, 34 control the closing of the valve 8. The first cam 12 acts via a follower 16, a push rod 18, and a rocker arm 20 to open the valve 8 by overcoming a spring biasing the valve 8 to a closed position. See Fig. 1 of Luria. The second cam 34 engages the rocker arm 20 when its rotational phase is shifted out of phase with that of the first cam 12 and overcomes the spring bias urging the valve 8 to the closed position.

Luria further discloses in lines 13 to 54 of column 4 and in Fig. 2, an arrangement for driving a cam shaft 32 of the second cam 34 and adjusting the rotational phase of the second cam 34 with respect to the first cam 12.

Regarding independent claims 1 and 13, Luria fails to disclose, *inter alia*, a valve actuation system comprising an engine valve moveable between a first position and a second position, a cam follower, a first cam adapted to directly contact the cam follower to move the engine valve, and a second cam adapted to directly contact the cam follower to affect movement of the engine valve. As set forth above, Luria discloses that the first cam 12 acts on the rocker arm 20 via the push rod 18 and does not contact the rocker arm 20. Additionally, Luria discloses that the second cam 34 contacts the rocker arm 20 and does not contact the cam follower 16 that the first cam 12 contacts.

Although Luria discloses first and second cams, the first and second cams 12, 34 are adapted to directly contact different cam followers, e.g., the cam follower 16 and the rocker arm 20, respectively. The Examiner has admitted this deficiency of Luria in the Office Action by stating "[a]though cam 12 of Luria does not directly contact rocker arm 20." See lines 3-5 of page 6 of the Office Action. Accordingly, Applicant submits that independent claims 1 and 13 are allowable for at least this reason. Claims 3-5, 7, 8, 14, and 15 depend from either claim 1 or claim 13 and are also allowable for this reason as well as for their additional features.

Regarding independent claim 16, Luria fails to disclose, *inter alia*, an engine comprising an engine valve, a cam follower, a first cam adapted to directly contact the cam follower such that rotation of the first cam acts to move the engine valve from a first position to a second position during a first lift period, a second cam adapted to

selectively directly contact and selectively not contact the cam follower such that the rotation of the second cam acts to affect the movement of the engine valve from the first position to the second position during a second lift period. As set forth above with respect to independent claims 1 and 13, Luria discloses that the first and second cams 12, 34 are adapted to directly contact different cam followers, e.g., the cam follower 16 and the rocker arm 20, respectively. The Examiner has admitted this deficiency of Luria in the Office Action by stating "[a]lthough cam 12 of Luria does not directly contact rocker arm 20." See lines 3-5 of page 6 of the Office Action. Accordingly, Applicant submits that independent claim 16 is allowable for at least this reason. Claims 18-20 and 22 depend from claim 16 and are also allowable for this reason as well as for their additional features.

Obviousness Rejections

In the Office Action, claims 2 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Luria in view of U.S. Patent No. 4,708,101 to Hara et al. ("Hara") and claims 6 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Luria. Applicant respectfully traverses these rejections. A proper *prima facie* case of obviousness requires, *inter alia*, that the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2142.

Hara discloses in Figs. 8(A) to 10 and in line 34 of column 4 to line 36 of column 5, a driving apparatus for an engine valve including a driving cam 13 fixed to a cam shaft 14, a rocker arm 15, one end of which contacts the driving cam 13 and the other end of which engages an intake valve 12. Hara also discloses a lever 16 which

engages a control cam 17 and contacts the back surface of the rocker arm 15 to create a fulcrum. During operation of the driving apparatus, rotation of the driving cam 13 pivots the rocker 15 about the fulcrum to lift the intake valve 12. Rotation of the control cam 17 moves the lever 16 to adjust and establish the position of the fulcrum of the rocker arm 15. Adjusting the position of the fulcrum serves to vary the amount of displacement of the rocker arm 15 caused by the driving cam 13 and thus affects the extent of movement of the intake valve 12.

Regarding claims 2 and 17, Hara was relied upon to teach a phase shifting mechanism including a helical spline and a hydraulic actuator. However, the teachings of Hara and the alleged modification of Luria in view thereof do not cure the deficiencies noted above with respect to Luria. Namely, Luria discloses that the first and second cams 12 and 34 are adapted to engage different cam followers. Accordingly, Applicant submits that claims 2 and 17 are allowable for at least this reason.

Regarding claims 6 and 21, the Office Action seemingly takes Official Notice that adding an additional rocker arm or cam follower with a push rod is well within one of ordinary skill in the art in view of space and other engine conditions. Regardless of the apparent Official Notice and the alleged modification of Luria to include an additional rocker arm or cam follower, such modifications do not cure the deficiencies noted above with respect to Luria. Specifically, Luria discloses that the first and second cams 12 and 34 are adapted to engage different cam followers. Accordingly, Applicant submits that claims 6 and 21 are allowable for at least this reason.

Conclusion

Applicant respectfully requests the reconsideration of the rejections set forth in the Office Action in light of the remarks set forth above, and requests entry of this Amendment under 37 C.F.R. § 1.116, which place claims 1-8 and 13-22 in condition for allowance. The amendments to claims 1, 13, and 16 merely clarify the language of the claims and are consistent with the agreements made in the telephonic Interview conducted with the Examiner on January 02, 2007. Accordingly, this Amendment does not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, because all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Finally, Applicant submits that the entry of the Amendment would place the application in better form for appeal should the Examiner dispute the patentability of pending claims 1-8 and 13-22.

In view of the foregoing remarks, Applicant submits that the claimed invention is not anticipated nor obvious in view of the prior art references cited against the claims. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.


The Office Action contains characterizations of the claims and the related art, with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

If the Examiner believes a telephone conversation might advance prosecution,
the Examiner is invited to call Applicant's undersigned representative at 202-408-4397.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,
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By: 

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